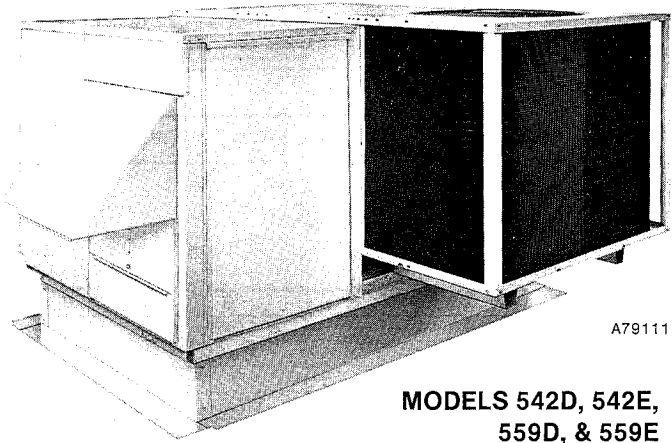


**MODELS**  
**585H, 585J, & 579J**

A82175



**MODELS 542D, 542E,  
559D, & 559E**

A79111

These rooftop system accessories are designed specifically for use with Models 542D and 542E Packaged Heat Pumps, Models 559D and 559E Packaged Air Conditioners, and Models 585H & J and 579J Packaged Gas/Electric Units. Models 542D, 559D, and 579J Downflow Units have a factory-installed plenum section which substantially reduces installation time and cost. Accessory plenums and filter racks are not required with these downflow units. *See the table on the last page of this publication for system accessory applications.*

Rooftop system accessories minimize overall installation costs and add a distinctive customized appearance to the installation. Unsightly ductwork, screws, and tape that detract from the rooftop installation are eliminated with the downflow unit, or the end discharge unit with an accessory plenum, installed on a roof-mounting curb.

This full line of accessories is available to meet the demands of most applications and includes: downflow plenums, roof-mounting curbs, flexible duct kits, concentric diffuser boxes, plenum economizers, horizontal economizers, and high-capacity filter racks.

A distinctive feature of the concentric duct arrangement design is the use of two parallel flexible ducts to connect the plenum to the aerodynamically designed concentric diffuser box. Special curb adapters are not required. This design eliminates the need for near-perfect alignment between the plenum section and curb on the roof and the ceiling-mounted diffuser grille.

# ROOFTOP SYSTEM ACCESSORIES

## SYSTEM ACCESSORY APPLICATIONS

Accessory Description	542E			542D	559E					559D	585H & J			579J
	024, 030, & 036	042 & 048	060	060	024 & 030	036	042	048	060	060	018040 thru 036060	036100 thru 048125	060100 & 060150	060125
Plenum	304854-402	304854-404		—	304854-401	304854-402	304854-403	304854-404		—	304854-405	304854-409		—
Roof-Mounting Curb	304851-301	304851-302		304851-302	304851-301			304851-302		304851-302	304851-303	304851-304		304851-304
Modulating Plenum Economizer††	304852-302	304852-304		304852-304	304852-301	304852-302	304852-303	304852-304		304852-304	304852-302	304852-304		304852-304
Two-Position Plenum Economizer	304852-306	304852-308		304852-308	304852-305	304852-306	304852-307	304852-308		304852-308	304852-306	304852-308		304852-308
Barometric Damper Kit*	301588-306	301588-305		301588-305	301588-307	301588-306	301588-304	301588-305		301588-305	301588-306	301588-305		301588-305
Modulating Horizontal Economizer††	304853-302	304853-303		—	304853-301	304853-302		304853-303		—	304853-302	304853-303		—
Two-Position Horizontal Economizer	304853-305	304853-306		—	304853-304	304853-305		304853-306		—	304853-305	304853-306		—
Barometric Damper Kit†	301588-308	301588-309		—	301588-310	301588-308		301588-309		—	301588-308	301588-309		—
Concentric Diffuser Box	301594-301	301594-302	301594-303	301594-303	301594-301		301594-302	301594-303		301594-303	301594-301	301594-302	301594-303	301594-303
Flexible Duct Kit (48-inch)‡	301589-301	301589-303	301589-305	301589-305	301589-301		301589-303	301589-305		301589-305	301589-301	301589-303	301589-305	301589-305
High-Capacity Filter Rack	301591-306	301591-302	301591-307	—	301591-305	301591-306	301591-302	301591-307		—	301591-301	301591-302**	301591-307	—

\*Kit includes both damper and relief-air hood. P/N's shown on this line are for applications with plenum economizers.

†Kit includes both damper and relief-air hood. P/N's shown on this line are for applications with horizontal economizers. The damper kits can only be used with the horizontal economizers when the optional bottom return is used.

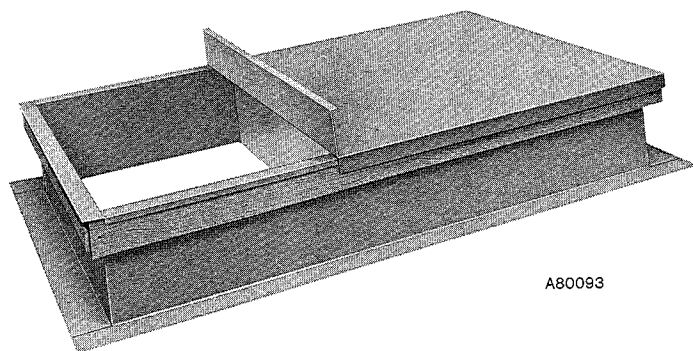
‡Flexible duct P/N's shown are for a carton of two.

\*\*Use high-capacity filter rack P/N 301591-301 with size 036100.

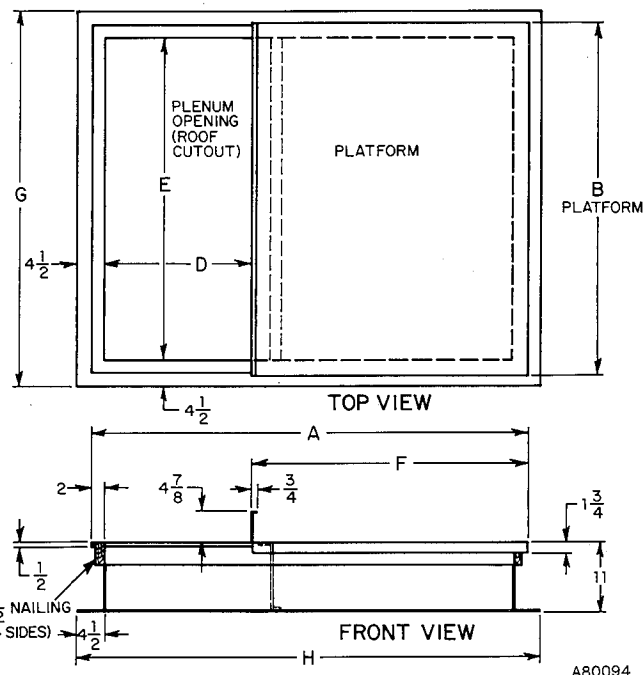
††A stepdown transformer & mounting box are available to avoid having a separate 230-V power supply for 460-V applications. See "Economizer Accessories Section."

## ROOF-MOUNTING CURBS

The factory-assembled roof-mounting curbs are designed for use with the downflow units or the end discharge units when using the accessory plenum. Heavy-gauge, galvanized steel construction provides one-piece support. The curb complies with the standards of the National Roofing Contractors Association. A 2- x 4-inch nailing strip is provided for attaching the roofing to the curb.



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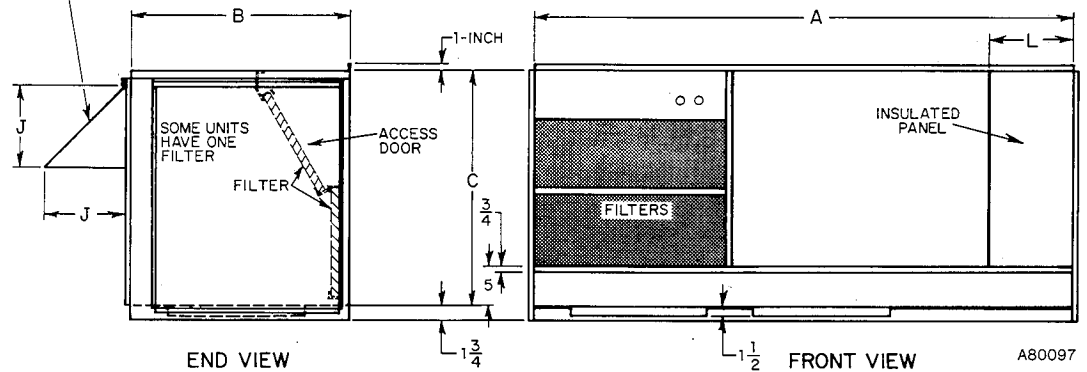
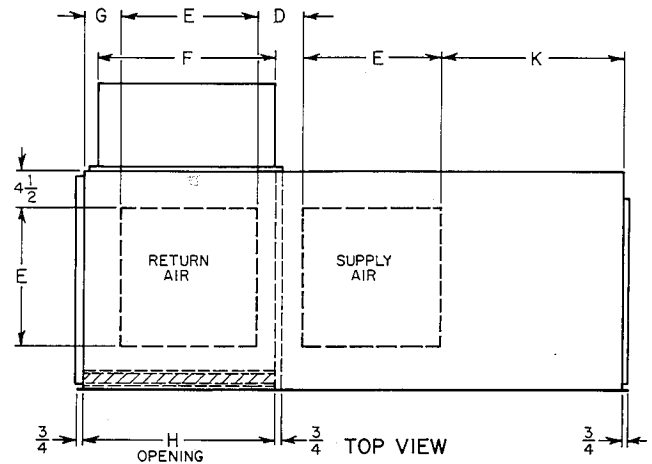
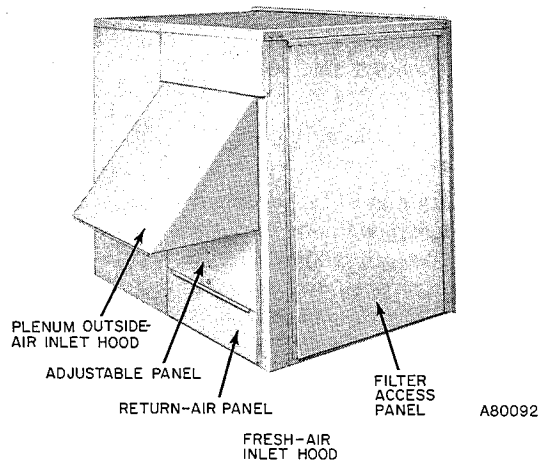
### CURB P/N'S & DIMENSIONS (Inches)

Curb P/N	A	B	D	E	F	G	H
304851-301	56-3/4	39-1/2	21-3/4	35-1/2	33	44-1/2	61-3/4
304851-302	68-3/4	44-1/2	23-3/4	40-1/2	43	49-1/2	73-3/4
304851-303	59-1/2	50-1/2	21-1/2	46-1/2	36	55-1/2	64-1/2
304851-304	70-1/2	62-1/2	23-1/2	58-1/2	45	67-1/2	75-1/2

# PLENUMS FOR END-DISCHARGE UNITS

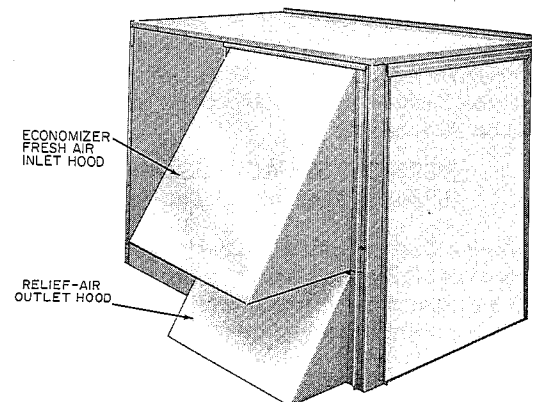
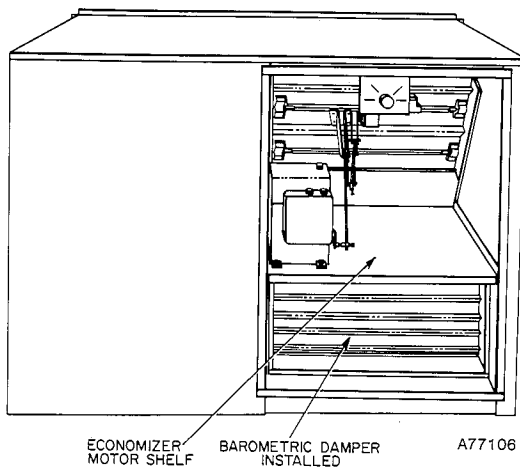
The basic plenum package includes the fully assembled rain-proof plenum with screened adjustable fresh-air inlet hood that provides up to 25% outside air, 1-inch disposable air filters, removable panels for filter access and easy installation of plenum mounted accessories such as the optional economizer.

These plenums are constructed from heavy-gauge, galvanized steel, finished with outdoor-quality, malibu beige enamel to match the rooftop unit, and fully insulated with UL-listed duct liner.



PLENUM P/N'S & DIMENSIONS (Inches)

Plenum P/N	A	B	C	D	E	F	G	H	J	K	L	Filter Size
304854-401	40	25	21-7/16	2	15	20-1/2	4	20	13-1/4	4	—	(1) 20 x 20 x 1
304854-402	40	25	27-7/16	2	15	17-1/2	4	20	11	4	—	(1) 20 x 25 x 1
304854-403	45	27	27-7/16	3	17	20-1/2	4	23	13-1/4	4	—	(1) 20 x 25 x 1
304854-404	45	27	33-7/16	3	17	20-1/2	4	23	13-1/4	4	—	(2) 20 x 20 x 1
304854-405	51-1/2	25	29-11/16	4	15	17-1/2	4	21	11	13-1/2	5	(1) 20 x 25 x 1
304854-409	63-1/2	27	29-11/16	2-1/2	17	20-1/2	3-1/2	21	13-1/4	23-1/2	9	(2) 20 x 16 x 1



Plenum With Economizer & Plenum Rainhoods Installed

# ECONOMIZERS—PLENUM & HORIZONTAL

The plenum-mounted modulating economizer and plenum-mounted, two-position economizer are designed for easy installation in the plenum section of the downflow units or in the accessory plenum used with the end discharge units. The modulating horizontal economizer and two-position horizontal economizer are designed for use with the end discharge units when the accessory plenum is not desired. These horizontal economizers can be attached directly over the unit return-air opening or they can be installed in the return-air duct in a remote location.

All of these economizers adjust their outdoor- and return-air dampers to economically blend cooler outside air with warmer return air for comfort cooling. This process reduces energy costs and extends equipment life by allowing the use of outdoor air to supply "free" cooling when conditions are favorable.

Constant ventilation is recommended for commercial application when the conditioned space is occupied.

The modulating-type economizers have a mixed-air controller that provides for full-range modulation of the outdoor- and return-air dampers. The enthalpy control selects the suitable outdoor-air quality for "free" cooling operation by measuring the outdoor-air dry bulb temperature and humidity mix. The motor requires a 208- or 230-V single-phase power supply. This motor does not have a spring return. A transformer is required for 460-V applications.

The two-position-type economizers open the outdoor-air dampers to a fully open position. These lower-cost economizers, which also operate in response to the enthalpy control, approximate the performance of the fully modulating economizers by continuously adjusting the dampers open or closed to match the requirements of the conditioned space. These two-position economizers also feature lower installation costs because the motor operates through the 24-volt control circuit of the unit and, therefore, does not require a separate power supply. This motor has a spring return that closes the outside-air dampers when the 24-volt control circuit is off for any reason.

All economizers are shipped complete with a damper motor and linkage, enthalpy control, compressor lockout switch, low-voltage wiring harness, high-voltage leads (modulating economizers) and a rainhood. Adequate wire lengths are provided; therefore, additional field-supplied wires are not required. The modulating economizers also have a mixed-air controller and an adjustable, motor-mounted, minimum-position potentiometer. Horizontal economizers are also furnished with 1-inch disposable air filters and gasket material. Horizontal economizers are not painted.

Plenum economizers will be factory-assembled in the accessory plenum when ordered concurrently with the plenum—at no extra charge. (Plenum economizers are not available as factory-installed in the downflow units—Models 542D, 559D, & 579J. They must be field-installed.)

## ECONOMIZER ACCESSORIES BAROMETRIC RELIEF DAMPER

This accessory is an automatic pressure-relief device that prevents excessive buildup of indoor pressures, and is recommended if the economizer is specified. It is easily installed in the economizer casing at the return compartment. When the barometric relief damper is installed in a horizontal economizer, the alternate bottom return-air duct connection must be used.

The barometric relief damper will be factory-assembled in the economizer when ordered concurrently—no extra charge. (Not available as factory-installed with Models 542D, 559D, and 579J Downflow Units.

## MODULATING ECONOMIZER ACCESSORIES

**Remote Potentiometer**—The remote manual potentiometer is used to remotely open the dampers for additional ventilation. (P/N P271-9782)

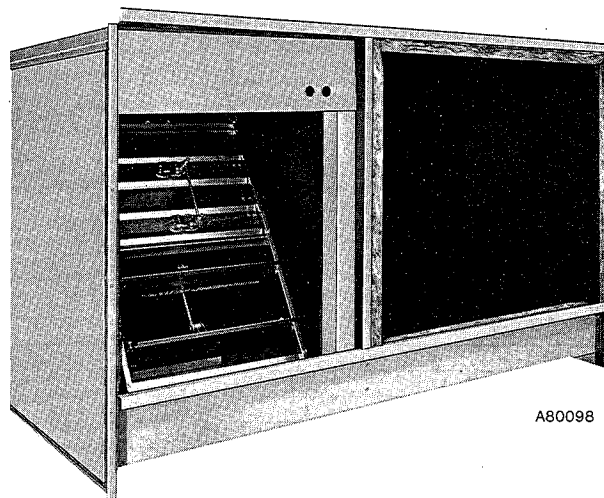
**Night Thermostat**—To reduce heating expenses, the night thermostat is used in buildings that are unoccupied at night. The night thermostat shuts the outdoor dampers of the economizer and prevents unneeded cold ventilation outdoor air from being added to the system. (P/N PS-3330)

**Timeclock**—The timeclock is used for automatic operation of the night thermostat. (P/N PS-3328)

**Warmup Thermostat**—The morning warmup thermostat is used in conjunction with the automatic night thermostat to provide added energy economy. The warmup thermostat assists in raising the conditioned space temperature to occupied conditions as soon as possible with a minimum use of energy. (P/N P331-9902)

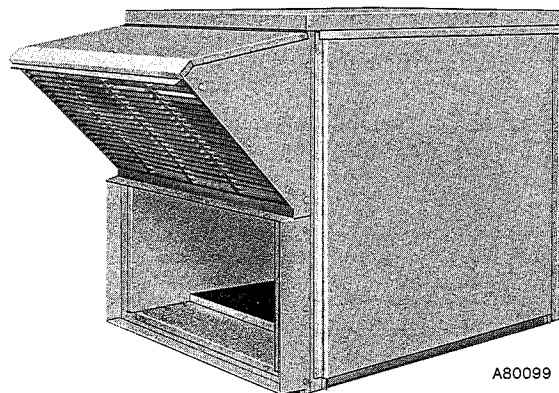
**Minimum Outdoor-Air Relay**—This control closes the outdoor-air dampers of the economizer to the minimum position when the system is in the heating mode. (P/N P283-1203)

**Stepdown Transformer & Mounting Box**—This transformer can be used to avoid having a separate 230-V power supply for the modulating economizer when installing economizer with a 460-V rooftop unit. (transformer: P/N P541-8501, mounting box: P/N 301590-301)



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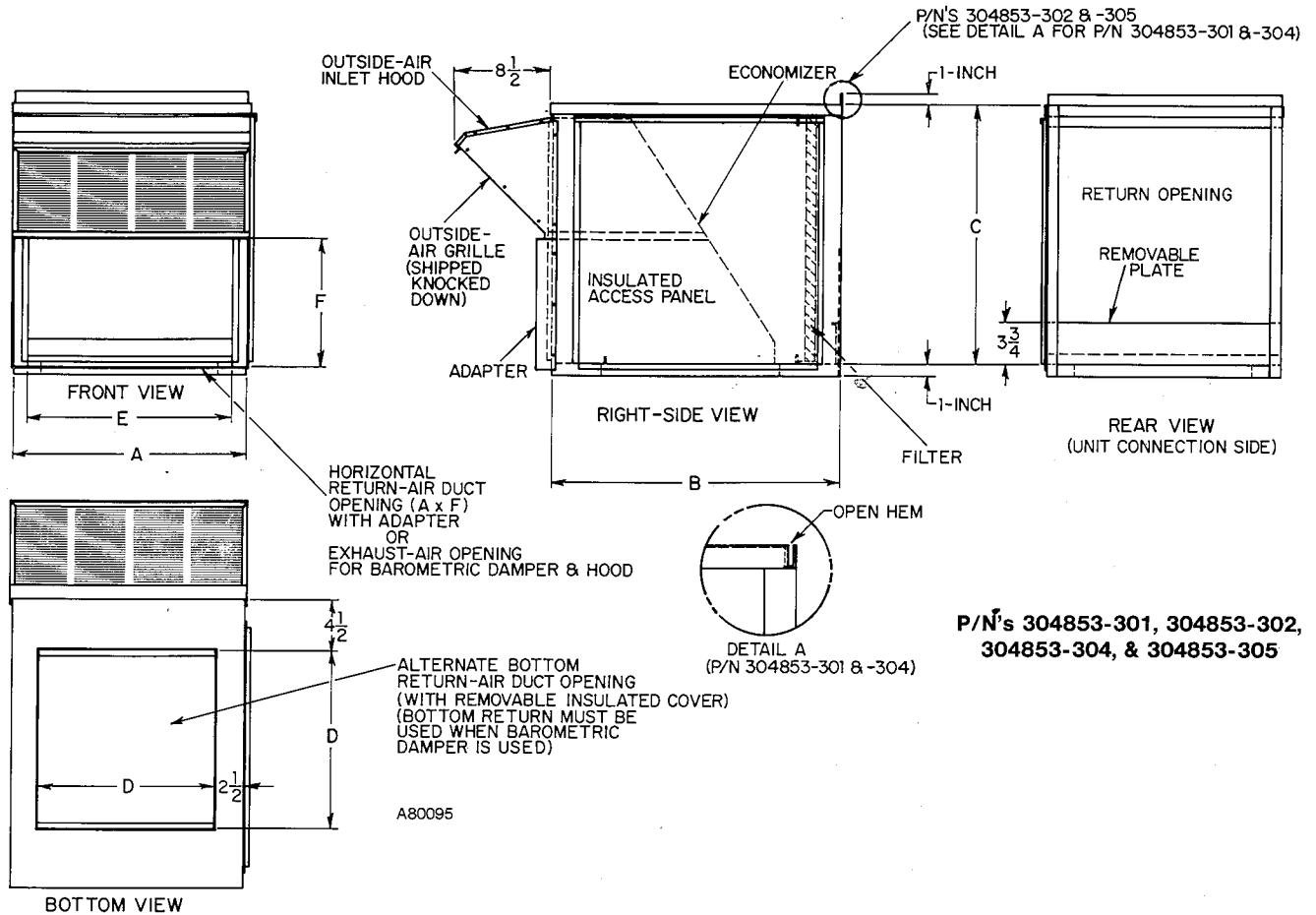
PLENUM-MOUNTED ECONOMIZER



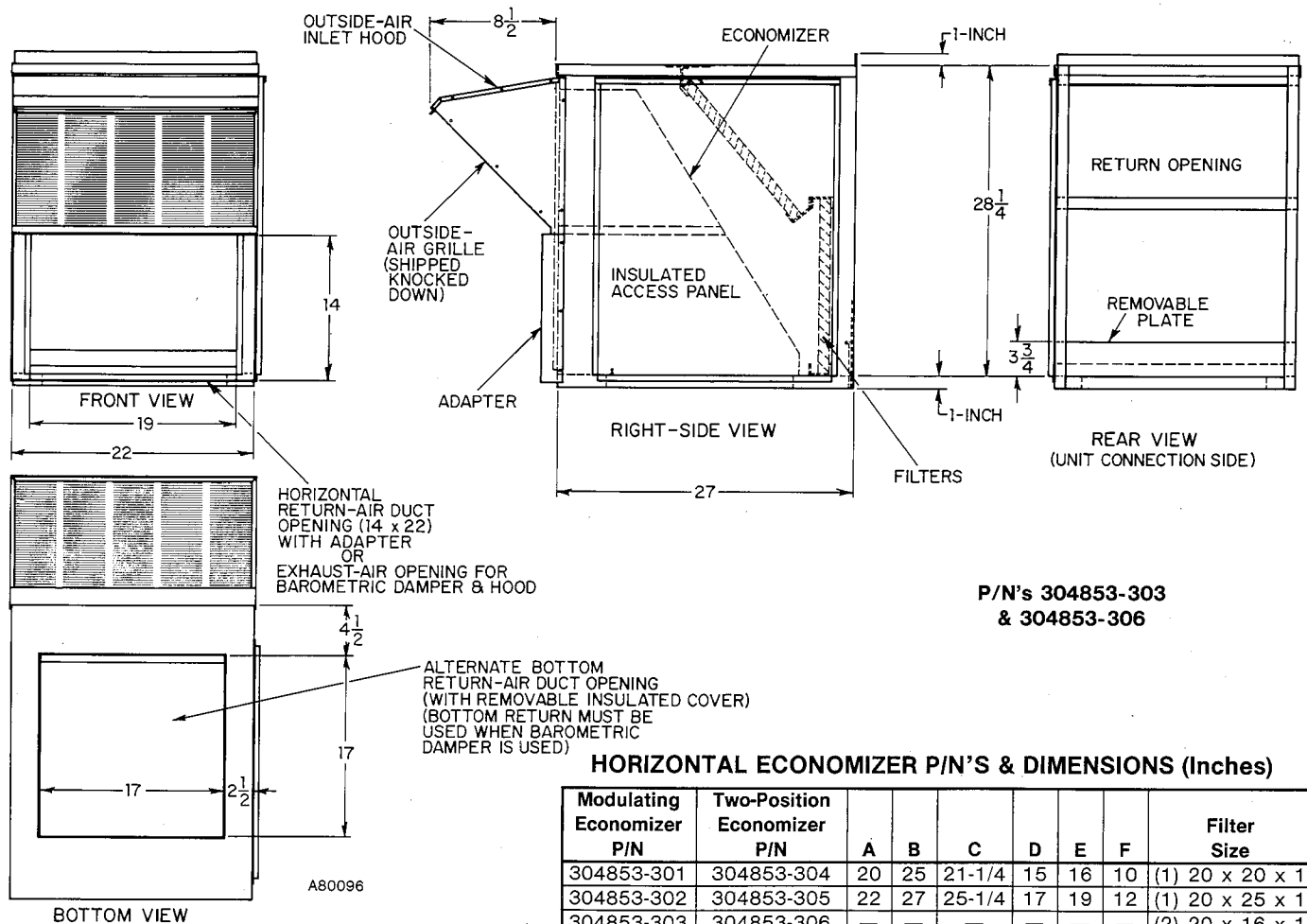
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HORIZONTAL ECONOMIZER

# HORIZONTAL ECONOMIZER DIMENSIONS



P/N's 304853-301, 304853-302, 304853-304, & 304853-305

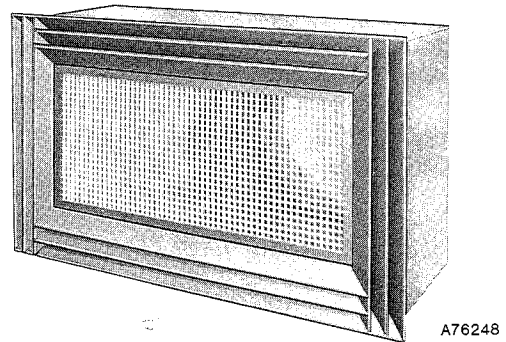
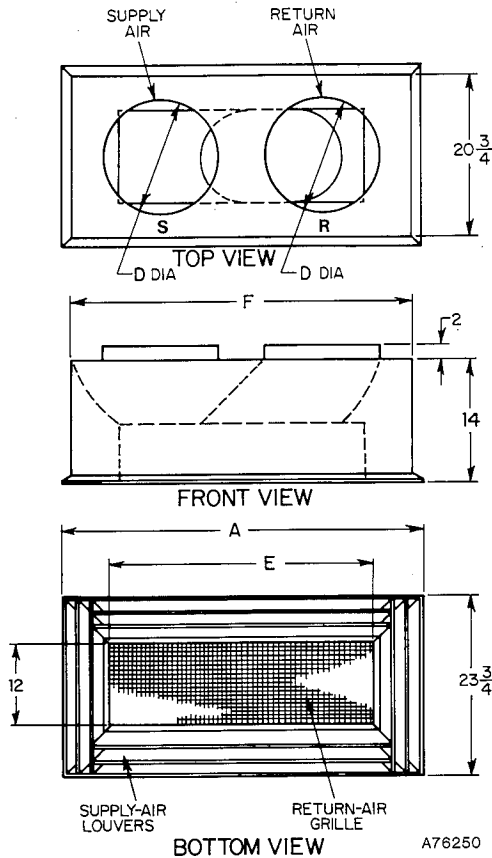


## HORIZONTAL ECONOMIZER P/N'S & DIMENSIONS (Inches)

Modulating Economizer P/N	Two-Position Economizer P/N	A	B	C	D	E	F	Filter Size
304853-301	304853-304	20	25	21-1/4	15	16	10	(1) 20 x 20 x 1
304853-302	304853-305	22	27	25-1/4	17	19	12	(1) 20 x 25 x 1
304853-303	304853-306	—	—	—	—	—	—	(2) 20 x 16 x 1

# CONCENTRIC DIFFUSER BOX

The aerodynamically designed concentric diffuser box assembly is equipped with a combination four-way supply, and center return diffuser. The box is designed for use with accessory flexible ducts and plenum sections or accessory plenums to provide an easily installed concentric system. A special core is provided within the diffuser box to provide even four-way air distribution.



**CONCENTRIC DIFFUSER BOX P/N'S  
& DIMENSIONS (Inches)**

Diffuser Box P/N	A	D	E	F
301594-301	38-3/4	16	24	36
301594-302	47-3/4	16	30	45
301594-303	47-3/4	18	30	45

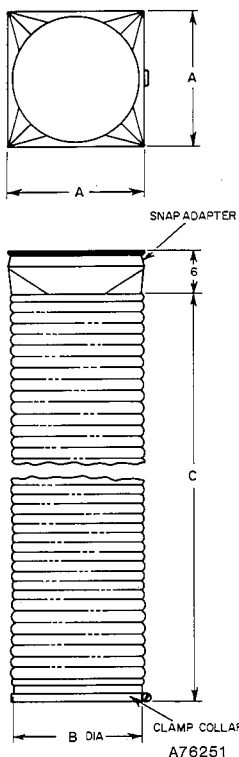
**DIFFUSER THROW AT  
INDICATED AIRFLOW (Ft<sup>3</sup>/Min)**

Concentric Diffuser Box P/N	Ft <sup>3</sup> /Min	Min-Max Throw* (Feet)
301594-301	600	6-13
	800	7-15
	1000	8-16
	1200	9-18
301594-302 & 301594-303	1200	7-14
	1400	8-17
	1600	9-20
	2000	12-27

\*Throw is the distance air travels from the outlet at a given terminal velocity (Vt). Minimum throw is at a Vt of 75 ft/min and maximum throw is at a Vt of 35 ft/min. A special core is provided within the diffuser box to provide even four-way air distribution.

## FLEXIBLE DUCTS

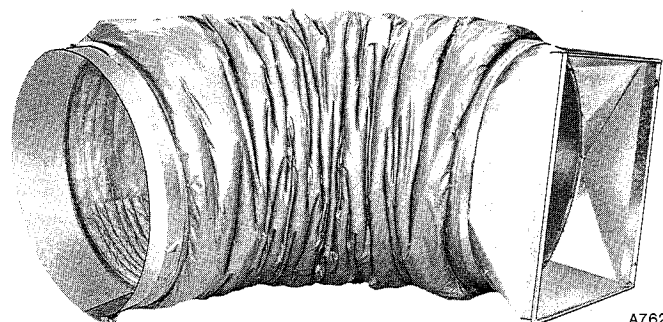
The flexible duct package consists of two flexible UL-listed ducts. The duct construction includes vapor barrier and 1-inch fiber glass insulation. The "K" factor is 0.23. Each duct has a square-to-round snap adapter for attachment to the accessory plenum on one end, and a round clamp collar for attachment to the concentric diffuser box on the other end.



**FLEXIBLE DUCT P/N'S &  
DIMENSIONS (Inches)**

Flexible Duct P/N*	A	B	C
301589-301	15	16	42
301589-303	17	16	42
301589-305	17	18	42

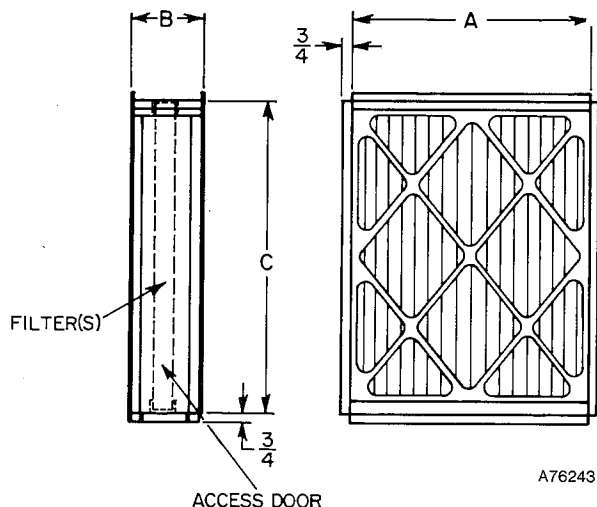
\*Packaged two per carton.



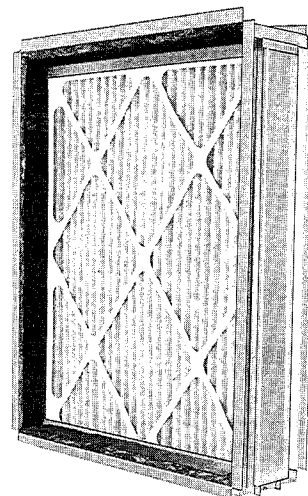
# HIGH-CAPACITY FILTER RACKS

These high-capacity filter racks have been designed for use with Models 542E, 559E, and 585H & J End Discharge Units; and feature easy installation, serviceability, and high filtering performance. The housing is constructed from heavy-gauge steel

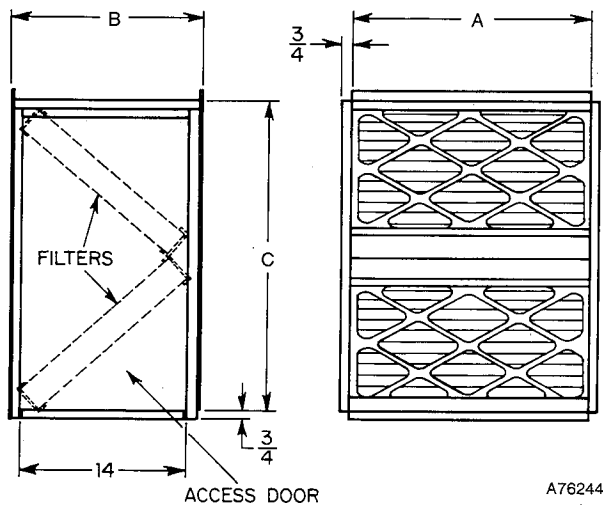
and is fully insulated. Both sides of the filter rack are flanged for easy installation. Two-inch, high-capacity, Farr 30/30 filters are provided.



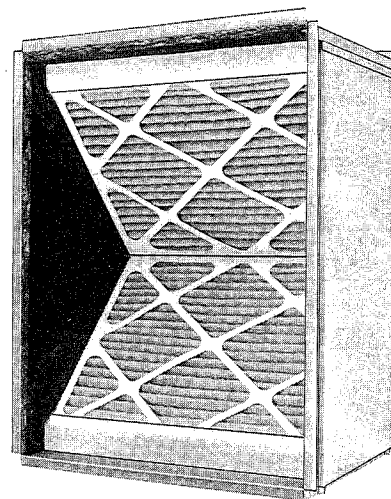
P/N's 301591-302, -305, -306, & -307



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P/N 301591-301



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## HIGH-CAPACITY FILTER RACK P/N'S & DIMENSIONS (Inches)

Filter Rack P/N	A	B	C	Filter Size
301591-301	20	6	26-1/2	(1) 20 x 25 x 2
301591-302	20	16	26-1/2	(2) 16 x 20 x 2
301591-305	20	19	17-1/2	(2) 16 x 20 x 2
301591-306	20	19	22	(2) 16 x 20 x 2
301591-307	20	21-1/2	26-1/2	(2) 20 x 20 x 2

## BRYANT RECOMMENDED ROOM THERMOSTATS & SUBBASES

Application	Thermostat P/N	Heat Anticipator Range	Subbase P/N	System Switch	Fan Switch
Single-Stage Heating & Cooling	P271-3496*	0.15-1.2	Included	HEAT—OFF—COOL	AUTO—ON
	P271-2661†	0.18-1.0	P271-1861		
	P271-2171*	0.1-1.2	P271-1871		
	P271-2771‡				
Manual Changeover	P272-2781‡	0.1-1.2	P272-1883	HEAT—AUTO—COOL—OFF	AUTO—ON
Autochangeover	P272-2781‡	0.1-1.2	P272-1882		

\*Bryant logo.

†Uniparts® logo.

‡Honeywell logo.

# ACCESSORY PRESSURE DROPS

The Product Data Sheets for the various packaged units contain airflow tables that show the resulting airflow at indicated external static pressures. The static pressure drop through the entire external supply- and return-air handling system must be calculated to determine the system airflow from the packaged unit airflow tables. The system accessory static pressure drop informa-

tion contained in this publication can be used to calculate either the external static pressure drop for a portion of a side-by-side duct system; or the total external static pressure drop of a concentric diffuser system when using the accessory flexible ducts, concentric diffuser box, and plenum.

## SYSTEM ACCESSORY STATIC PRESSURE DROP (In. wc) AT INDICATED PACKAGED UNIT AIRFLOWS IN THE RANGE OF 500 TO 1600 FT<sup>3</sup>/MIN

Accessory P/N	Airflow (Ft <sup>3</sup> /Min)											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
PLENUM												
304854-401	—	0.19	0.23	0.27	0.32	0.38	0.45	—	—	—	—	—
304845-402	—	0.04	0.05	0.08	0.12	0.16	0.23	0.29	0.36	—	—	—
304854-405	0.03	0.04	0.06	0.09	0.13	0.18	0.25	0.32	0.40	—	—	—
PLENUM ECONOMIZER*												
304852-301 or -305	—	0.03	0.03	0.04	0.04	0.05	0.05	—	—	—	—	—
304852-302 or -306	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.04	—	—	—
HORIZONTAL ECONOMIZER*												
304853-301 or -304												
Horizontal Return	—	0.14	0.14	0.15	0.16	0.18	0.21	—	—	—	—	—
Bottom Return	—	0.22	0.22	0.22	0.23	0.24	0.28	—	—	—	—	—
304853-302 or -305												
Horizontal Return	0.07	0.08	0.08	0.09	0.10	0.12	0.14	0.16	0.19	—	—	—
Bottom Return	0.10	0.11	0.11	0.13	0.14	0.16	0.17	0.20	0.23	—	—	—
FLEXIBLE DUCTS & CONCENTRIC DIFFUSER BOX												
301589-301 & 301594-301	0.04	0.06	0.08	0.11	0.14	0.17	0.20	0.24	0.28	—	—	—
HIGH-CAPACIT FILTER RACK												
301591-301	0.08	0.10	0.12	0.13	0.15	0.16	0.18	0.20	0.21	0.22	0.24	0.26
301591-305	—	0.08	0.09	0.10	0.12	0.13	0.14	0.16	—	—	—	—
301591-306	—	0.08	0.09	0.10	0.12	0.13	0.14	0.16	—	—	—	—

## SYSTEM ACCESSORY STATIC PRESSURE DROP (In. wc) AT INDICATED PACKAGED UNIT AIRFLOWS IN THE RANGE OF 1000 TO 2100 FT<sup>3</sup>/MIN

Accessory P/N	Airflow (Ft <sup>3</sup> /Min)											
	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
<b>PLENUM</b>												
304854-403	—	—	0.13	0.15	0.18	0.21	0.24	—	—	—	—	—
304854-404	0.08	0.09	0.11	0.13	0.15	0.18	0.20	0.23	0.26	0.30	0.34	0.39
304854-409	0.19	0.21	0.22	0.24	0.26	0.29	0.31	0.35	0.40	0.46	0.54	0.64
<b>PLENUM ECONOMIZER*</b>												
304852-303 or -307	—	—	0.02	0.03	0.04	0.04	0.05	—	—	—	—	—
304852-304 or -308	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.04	0.05	0.06	0.06	0.07
<b>HORIZONTAL ECONOMIZER*</b>												
304853-302 or -305												
Horizontal Return	—	—	0.16	0.19	0.23	0.30	—	—	—	—	—	—
Bottom Return	—	—	0.20	0.23	0.27	0.34	—	—	—	—	—	—
304853-303 or -306												
Horizontal Return	0.08	0.09	0.11	0.13	0.15	0.18	0.20	0.23	0.26	0.30	0.34	0.39
Bottom Return	0.10	0.12	0.15	0.17	0.20	0.23	0.27	0.30	0.34	0.39	0.45	0.52
<b>FLEXIBLE DUCTS &amp; CONCENTRIC DIFFUSER BOX</b>												
301589-303 & 301594-302	0.06	0.07	0.09	0.11	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.27
301589-305 & 301594-303	—	—	—	—	—	—	—	0.14	0.16	0.18	0.20	0.22
<b>HIGH-CAPACITY FILTER RACK</b>												
301591-302	0.13	0.14	0.16	0.17	0.18	0.19	0.21	0.23	0.24	0.26	0.27	—
301591-306	0.13	0.14	0.16	0.17	0.18	0.19	0.21	0.22	0.23	0.24	0.26	0.27
301591-307	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21

\*Pressure drop data for economizers is based on a neutral air pressure in the conditioned space as can be achieved with the accessory barometric damper kit.

—A dash indicates portions of the table that are beyond the airflow ranges of the packaged units with which the accessory is used.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE  
WITH INSTALLATION INSTRUCTIONS